

REMARKS

In the Office Action¹, the Examiner took the following actions:

Objected to the Drawings and the Specification;

Rejected claims 7-14 under 35 U.S.C. § 112 as being indefinite; and

Rejected claims 1-20 under 35 U.S.C. § 103(a) as being unpatentable over "Design and Evaluation of a Resource Selection Framework for Grid Application" by Liu et al. ("*Liu*") in view of "Nimrod/G: An Architecture for a Resource Management and Scheduling System in a Global Computational Grid" by Buyya et al. ("*Buyya*") and further in view of "The Cactus Worm: Experiments with Dynamic Resource Discovery and Allocation in a Grid Environment" by Allen et al. ("*Allen*").

Applicants have amended claim 1-2, 7, and 14-15. Claims 1-20 remain pending.

I. Regarding the objection to the drawings

Applicants respectfully traverse the objection of Figure 1 for not being labeled Prior Art. The Examiner asserts that "Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated." See Office Action, page 2. This is not correct.

Contrary to the Examiner's assertion, Figure 1 does not illustrate only that which is old. As demonstrated in the "Detailed Description" of the original specification, Figure 1 illustrates a block diagram of a grid computing environment performing the computational tasks of Applicants' invention. Moreover, the paragraph beginning on

¹ The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants decline to automatically subscribe to any statement or characterization in the Office Action.

page 6, line 19 discloses: “the IPC dispatcher **116** uses IPC servers **120, 122, 124,** and **126** to perform calculations for users, services in the grid computing environment **100** monitor resource utilization on computer devices in the grid computing environment **100** running the IPC servers **120, 122, 124,** and **126**. The services also send this utilization information to the IPC manager **118**. Based on a comparison between utilization requirements and current resource loading, the IPC manager **118** can dynamically inform services in the grid computing environment 100 to allocate more resources for IPC servers **120, 122, 124,** and **126** or deallocate resources to keep utilization of resources in the grid computing environment 100 at a desired level.” Figure 1 is not explained in the “Background” of the original specification and is described in the specification repeatedly as performing the steps disclosed in Figures 2-7. Therefore, Figure 1 does not illustrate only that which is old and the objection is improper.

Applicants respectfully request that the Examiner withdraw the objection to the drawings.

II. Regarding the objection to the specification

The Examiner asserts that the term “IPC” should be spelled out. See Office Action, page 2. Applicants traverse this objection and submit that IPC is disclosed as an internet pricing configurator in the original specification on page 5, lines 16-17. However, in an effort to further prosecution Applicants have amended the specification to link “internet pricing configurator” to the abbreviation “IPC” even more clearly. Therefore, Applicants requests that the Examiner withdraw the objection to the specification.

III. Regarding the rejection of claims 7-14 under 35 U.S.C. §112, second paragraph

The Examiner rejected claims 7-14 and stated that claim 7 “does not disclose specifically what type of request is being send and who is receiving,” further stating that it “is not clear in terms of which first and second service its being send to.” See Office Action, page 3. Applicants respectfully disagree with the Examiner for at least the following reasons.

During examination of claims for compliance of 35 U.S.C. § 112, second paragraph, the Examiner shall focus on “whether the claim meets the threshold requirements of clarity and precision, not whether more suitable language or modes of expression are available.” M.P.E.P. § 2173.02. Further, “[a]cceptability of claim ... language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification.” M.P.E.P § 2173.05(b). Therefore, if one of ordinary skill in the art would be reasonably apprised of the scope of the invention, in light of the specification, any rejection under 35 U.S.C. § 112, second paragraph, is improper. *See id.*

Applicants submit that the claimed limitation “a request for a list of one or more computational resources to begin computing a task,” would have enabled one of ordinary skill in the art to determine what is claimed, in light of the specification. However, to expedite prosecution, Applicants have amended the claims to provide even greater clarity. Applicants respectfully request reconsideration and withdrawal of the rejection of claim 7 under 35 U.S.C. §112, second paragraph.

For at least the foregoing reasons, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 7-14 under 35 U.S.C. §112, second paragraph.

IV. Regarding the rejection of claims 1-20 under 35 U.S.C. § 103(a) as being unpatentable over *Liu* in view of *Buyya* and further in view of *Allen*

Applicants respectfully traverse the rejection of claims 1-20 under 35 U.S.C. § 103(a) as being unpatentable over *Liu* in view of *Buyya* and further in view of *Allen*. A *prima facie* case of obviousness has not been established.

The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. Such an analysis should be made explicit and cannot be premised upon mere conclusory statements. See *M.P.E.P.* § 2142, 8th Ed., Rev. 6 (Sept. 2007). “A conclusion of obviousness requires that the reference(s) relied upon be enabling in that it put the public in possession of the claimed invention.” *M.P.E.P.* § 2145. Furthermore, “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art” at the time the invention was made. *M.P.E.P.* § 2143.01(III), *internal citation omitted*. Moreover, “[i]n determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.” *M.P.E.P.* § 2141.02(I), *internal citations omitted* (emphasis in original).

Independent claim 1 recites “if the selection of the computational resource is available to begin computing the task, reserving the selection and sending a reservation number for the selection; and sending the request to a different portion of the network if computational resources are unavailable to begin computing the task” (emphasis added). The applied prior art does not teach at least these elements of claim 1, and does not render claim 1 obvious.

The Examiner correctly states that “neither *Liu* nor *Buyya* specifically disclose the claimed, “sending the request to a different portion of the network if computational resources are unavailable.” See Office Action, page 5. The Examiner relies on *Allen* to allegedly disclose these elements. This is not correct.

According to the *Allen* system, “a resource selector and mechanisms to measure the simulation code’s performance by contract monitoring. A Migration Logic Manager thorn decides to migrate, depending on unacceptable degradation of performance has occurred on the current resource.” (page 6, lines 20-23). In another part of *Allen* it is explained that “The Performance Degradation Detection thorn monitors the performance of a Cactus application and, if performance degrades below a specified level, informs the Migration Logic Manager which negotiates with the Resource Selector and Migrator services to move the computation to new resources. Detection works as follows. At the end of each time quantum, we compute the execution rate of the application and the performance degradation (if any) relative to the average rate since the computation began.” (page 8, lines 21-25). Thus, the reallocation of a task taught by *Allen* comprises monitoring the task “during the execution of the application” and

migrating a computation that is already being executed, for better performance “than those currently in use.” (page 8, lines 14-15 and page 9, lines 6-7). However, such a reallocation of a currently executed task does not constitute Applicants’ claimed “request,” which includes “sending the request to a different portion of the network if computational resources are unavailable to begin computing the task,” as recited in claim 1 (emphasis added), because the reallocation and monitoring in *Allen* only occurs after the task has already been allocated and execution of the task has begun. Accordingly, there is no need or reason to go back prior to the computation of the task and allocate it to a different portion of the network.

The Examiner cites to “One set of thorns provides a migration module for any Cactus application, which allows a user to transfer the simulation state by a checkpoint file or checkpoint stream from one resource to the next ” as disclosing the above cited element of claim 1. See Office Action, page 5. The Examiner’s allegation is incorrect. As noted above, according to *Allen*, the “Migration Logic Manager thorn decides to migrate, depending on unacceptable degradation of performance has occurred on the current resource.” (page 6, lines 20-23). Such a disclosure does not constitute “sending the request to a different portion of the network if computational resources are unavailable to begin computing the task,” as recited in claim 1. In particular, such a disclosure does not teach or suggest the claimed “sending the request” to begin computing the task because, at most, *Allen* teaches monitoring and reallocating a task, on which computation has already begun.

As noted above, *Allen* discloses monitoring and reallocating a task, on which computation has already begun. Such monitoring and reallocation does not constitute “sending the request,” which includes “sending the request to a different portion of the network if computational resources are unavailable to begin computing the task,” as recited in claim 1 (emphasis added). That is, because the *Allen* reallocation is possible only after monitoring a task that has already begun, there is no reason to go back prior to the computation of the task and allocate it to a different portion of the network.

As discussed, “[i]n determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.” *M.P.E.P.* § 2141.02(I), internal citations omitted (emphasis in original).

As set forth in the MPEP §2143:

The key to supporting a rejection under 35 U.S.C. §103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR* noted the analysis supporting a rejection under 35 U.S.C. §103 must be made explicit.

Here, Applicants’ claimed invention as a whole would not be obvious in view of the cited prior art because the Examiner merely selects differences between *Allen* and the claimed invention, but does not provide a reason why one of ordinary skill in the art, at the time the invention was made, would modify *Allen* in a manner contrary to its purpose. Moreover, the Examiner has not identified any predictability or reasonable expectation of success of such a modification.

For at least the above reasons, the Examiner has failed to articulate a reason why prior art would render claim 1 obvious to one of skill in the art, and a *prima facie* case of obviousness has not been established. Therefore, the Examiner should withdraw the rejection of claim 1 under 35 U.S.C. § 103(a). Claim 1 is thus allowable over the art of record. Claims 2-6 are also allowable at least due to their dependence from claim 1.

Independent claims 7 and 15, while of different scope, recite elements similar to those of claim 1 and are thus allowable over *Allen* for at least the same reasons discussed above in regard to claim 1. Claims 8-14 and 16-20 are also allowable at least due to their dependence from claims 7 and 15 respectively.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of all pending claims. As demonstrated above, the claimed invention is neither anticipated nor rendered obvious by the prior art references cited against this application.

